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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL RESERVE

In the Matter of ET Docket No. 97-214

Amendment of Part 2 of the
Commission Rules to Allocate the
455-456 MHz, and 459-460 MHz bands
to the Mobile-Satellite Service

COMMENT ON NOTICE OF PROPOSED RULE MAKING

Comment Date: November 26, 1997

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INTRODUCTION

1. By this action, the Commission proposes to amend Part 2 of the Commission's Rules to allocate the 455-456 MHz band to the Mobile Satellite Service (Earth-to-space) ("MSS uplinks") on a primary basis for non-voice, non-geostationary mobile satellite services ("NVNG MSS").

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This action proposes to implement domestically the 455-456 MHz band NVNG MSS allocation adopted at the 1995 World Radiocommunication Conference ("WRC-95") at the request of the Commission.

2. The use of the term "primary"¹ is misleading, as the proposed operation in the 455-456 MHz band is subject to international footnote S5.286A², which subjects MSS operations in the 455-456 MHz band to coordination under Resolution 46 of the ITU regulations, and footnotes S5.286B³ and C⁴, which state that MSS operations in this band shall not "cause harmful interference to, or claim protection from, stations of the fixed or mobile services" and shall not "constrain the development and use of this spectrum by the fixed and mobile services".

3. It is our argument that the proposed allocation will cause significant damage to the already strained Part 74 operations in this band and we think this is a bad idea.

DISCUSSION

4. The Commission asks: "..we also request comment on whether a primary allocation with

¹ FCC ET Document No. 97-214, page 1, paragraph 1.

² FCC ET Document No. 97-214, page 2, paragraph 4.

³ *Supra* Note 2.

⁴ FCC ET Document No. 97-214, page 3, paragraph 4.

technical sharing requirements would be sufficient to protect incumbent operations."⁵ Our answer is a definite "No". The nature of the MSS service is such that equipment could be installed in a multitude of vehicles (i.e. tractor-trailers, tour buses, private vehicles) with unskilled operators away from their home base. It is unlikely that an appropriate response to a malfunction could be made. Because of the transient nature of the service (short duration and mobile), it is unlikely that any interfering signals could ever be located, or if they could, it is unlikely that anyone will take responsible action concerning it. When the interference occurs, the burden of proof would be on the broadcaster experiencing the interference. This broadcaster does not have the tools or the time to track down an interfering MSS transmitter. Does the Commission or the MSS industry propose to scatter monitoring stations around every congested market to act as a traffic cop for the MSS uplinks and automatically tell the MSS transmitters which frequencies not to use at any point in time?

5. Broadcasters in the RPU service have a very good record of frequency coordination and have maintained order in congested urban situations. While the RPU bands may be used intermittently, that use is constant. When broadcasters use the band as it was intended, frequency coordination needs to be implemented in order to avoid interference. Sometimes the coordination needs to happen within the space of hours or even minutes. In the Salt Lake City market, for example, four stations (two commercial and two NCE) sharing one RPU frequency, have banded together as a "users group" whereby we notify one another by e-mail when one of us will be using this one single channel so as to avoid interfering with one another.

⁵ FCC ET Document No. 97-214, page 6, paragraph 11.

6. The Commission has stated that "there are more than 25,000 Part 74 auxiliary broadcast transmitters authorized to use the 455-456 MHz band throughout the United States."⁶ While we agree with the Commission finding that "many auxiliary broadcast remote pickup channels in the 455-456 MHz band tend to be used only intermittently"⁷ we do not arrive at the same conclusion, namely that this intermittent usage will allow allocation sharing.

7. The Commission contends that "brief message duration and geographic separation may be able to protect broadcast auxiliary use".⁸ Perhaps, but we are not convinced that the terrestrial or satellite mobile receiver which seeks a quiet channel will be able to fully evaluate the conditions at the receive-end of a long-haul RPU transmission. If it cannot, the intermittent, occasional data bursts may interfere with what is supposed to be a broadcast quality transmission. The performance requirements for such a system are significantly higher than a two-way radio system requiring simple voice communication. The different natures of the broadcast RPU and MSS services reside in incompatible worlds that may be unresolvable. If an MSS data burst interferes with a live remote broadcast, our entire audience hears that audible interference and it resides in the memory of our listeners and the implications of having transmitted substandard audio lingers. If a message from a trucker or tourist to the home base does not get through, only a handful of people know about it and they can always just send it again from somewhere down the road. The broadcaster is motivated to keep his backyard clean and live cooperatively with his neighbors. The transient trucker or tourist is not aware of the existence of any other users and has no reason

⁶ FCC ET Document No. 97-214, page 7, paragraph 12.

⁷ *Supra* Note 6.

⁸ *Supra* Note 6.

to care because he doesn't live there. Likewise an MSS corporation with headquarters in some other part of the country is not likely to be concerned about occasional interference to broadcast RPU users anywhere in the country. The 455-456 MHz band is also used for telemetry from remotely located transmitter sites. The proposed MSS service also holds potential for interfering with this longstanding use of this spectrum.

8. The Commission makes only one statement regarding a definite technical mechanism by which spectrum sharing might be accomplished. The Commission states "...the digital bandscanning receiver to be used by one Little LEO system can detect a 0.5 second duration, 460 MHz, 2.5 KHz bandwidth, 3.5 milliwatts ("mW") transmit power signal anywhere in the satellite footprint with 99.9 % probability." and goes on to state specifications for a 16 KHz bandwidth signal.⁹ One of the channels in the broadcast RPU band of interest here, 455.925 MHz, is allocated for a single 100 KHz wide channel for equipment using 35 KHz deviation.¹⁰ It is conceivable that the satellite born receiver would not even detect the presence of such a wide signal because it is looking for narrower bandwidth signals. Also, during pauses in program audio when the entire channel is not actively occupied with radio frequency energy *but* the broadcast RPU receiver *with it's audio output still on-the-air* is detecting everything being sent within that channel, the satellite born receiver would think portions of the channel were available for MSS activity, and give terrestrial MSS units the go ahead to send data *within the channel currently being used for a live remote broadcast*. Additionally, the report from WRC-95 Informal Working Group 2A ("IWG-2A") states that "DCAAS (Dynamic Channel Activity Assignment

⁹ FCC ET Document No. 97-214, page 8, footnote 31.

¹⁰ See CFR 74.462 (c)

System) allows MSS mobile Earth uplink stations to communicate effectively in the presence of nearly co-channel interference from mobile transmitters.”¹¹ An argument that states that the MSS data system is well protected from terrestrial transmitters hardly gives comfort to a user of terrestrial broadcast RPU that this effort has the protection of part 74 users in mind. Finally, the Commission states “...it appears that IWG-2A conclusions *may* in part be based on *theoretical* assumptions such as low traffic-level mobile incumbent usage and that certain engineering techniques, such as the Dynamic Channel Activity Assignment System (“DCAAS”), which have been successfully used to permit Little LEO sharing in the 148-149.9 MHz band, *may* readily applied to the instant bands.”¹² *Theoretical* and *may* are not comforting words to a broadcast professional that works hard to achieve and protect the quality of audio being put on the air.

9. How does the Commission or the MSS industry propose to “geographically separate”¹³ hundreds of moving MSS subscribers and broadcast RPU users within the many congested urban areas of this country? Our local situation is a prime example. Interstate highways I-15, I-80, and I-84 are major vehicular arteries of the Intermountain West that intersect in the middle of our local market. These highways have the daily commercial vehicle traffic of the entire region flowing on them. Even with very low failure rates, there is opportunity for several malfunctioning units to come through the area on a daily basis, with many making extended stays at several of the local truck stops.

¹¹ *Supra*, Note 9.

¹² FCC ET Document No. 97-214, page 8, paragraph 15.

¹³ FCC ET Document No. 97-214, page 7, paragraph 12.

10. The concept of intermittent usage of the RPU services deserves a closer look. Do proposed mechanisms exist to provide for a complete shutdown of the MSS uplinks during times of disaster to insure that the then heavily used RPU services are not interfered with? Part 74 rules state that "Communications during an emergency or pending emergency directly related to the safety of life and property" would receive priority on the affected frequencies.¹⁴ The Commission noted in Report and Order 94-288 concerning the EAS that RPU frequencies may be used to link local governments with broadcasters.¹⁵ It appears that the demands for reliable, uninterfered communications in the broadcast RPU band are increasing, not decreasing.

11. Large scale events such as the 2002 Winter Olympics, which are to take place in Salt Lake City, will in all probability require almost continuous use of these RPU frequencies. Frequency coordination will be managed by an engineer employed by the Olympic Organizing Committee for that purpose. Is the MSS industry going to participate in this frequency coordination effort? In the event of an emergency presumably the frequency coordination engineer will clear the RPU channels for emergency traffic as per the rules. How will the MSS industry get the word to stop using these channels under these conditions? Indeed, under emergency conditions when normal broadcast RPU traffic has been cleared, those channels could then appear totally available to a satellite born receiver and become jammed with MSS traffic rendering them unusable for EAS¹⁶

¹⁴ See CFR 74.403(b)(1)

¹⁵ See First EAS Report and Order, 12-9-94.

¹⁶ *Supra*, Note 15.

or emergency¹⁷ purposes as indicated by the Commission.

CONCLUSION

12. The proposed use of the 455-456 MHz band is not required by WRC-95, but was included in WRC-95 at the request of the Commission. The use of these frequencies was permitted only on an "effectively secondary" basis.¹⁸ The Commission states that "the signal integrity of broadcast programming material must be maintained and that Little LEO operations will not be permitted to cause harmful interference to such auxiliary broadcast signals",¹⁹ but has not demonstrated any plan that reasonably indicates that this will indeed be the case.

13. While the proposed use of short-burst transmissions on open channels may appear technically feasible, such a system has not been tested. If this is a viable solution, then the burden of proof should be on the MSS industry to fund and test such a system to see if it indeed will work. The Commission could authorize such testing with Special Temporary Authorizations, and all testing should be coordinated with local broadcasters to insure that no interference does occur.

14. Of greater concern is the potential for future interference. If this service becomes as popular as PCS and cellular, then it is conceivable that even with state of the art frequency sharing techniques, interference may occur. Under those conditions, are the mobile transmitters

¹⁷ *Supra* Note 14.

¹⁸ FCC ET Document No. 97-214, page 6, paragraph 10.

¹⁹ FCC ET Document No. 97-214, page 7, paragraph 12.

to be remotely controllable to allow the entire system to be removed from the RPU frequencies in the event of said interference? The Commission, and broadcasters, would not be placed in a compromised position by an industry that says that technology exists to accomplish this . The burden must be placed on the MSS industry to develop remotely controllable frequency and transmission authorization to insure that the situation does not become unresolvable in the near future.

15. The best solution would be to remove the 455-456 MHz RPU band from consideration for use by these MSS services. If indeed the MSS equipment is capable of frequency sharing, let that service do it in one or more of the bands currently allocated for such service, 137-138 MHz, 148-149.9 MHz, 149.9 - 150.05 MHz, 399.9 - 400.05 MHz, 400.15 - 401 MHz.²⁰ By the very fact that the MSS industry is requesting additional frequencies for a technologically advanced system that *claims to be able to monitor itself and others* and accomplish the best possible frequency sharing, the MSS industry argument fails the ring of truth test.

²⁰ FCC ET Document No. 97-214, page 2, paragraph 3.